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By- Brandon, George L., Ed.

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Focusing on human resources and vocational guidance, this issue presents 10 reports with concentrations of materials on the following topics: career development, with research and development activities of Super, Krumboltz, Briggs, Ryan and others; selection, placement and follow-up, featuring the work of London, Haines, and Garbin; and studies of occupational trends, featuring the work of Medvin and Fishman. As stated in the General Report of the Advisory Council on Vocational Education, vocational education "...looks at a man as a part of society and as an individual, and never before has attention to the individual as a person been so imperative." In this context, documents are presented which make a case for functional vocational guidance. (CH)

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RESEARCH VISIBILITY

Synthesis / Application / Dissemination

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Human Resources and Vocational Guidance Services

VOCATIONAL EDUCATION IS OPPORTUNITY. "Shock" statistics are not easily sidestepped in introducing this *Research Visibility* report: "Eight out of 10 school dropouts have never had counseling by school or employment office officials about training or employment opportunities. . . . Four out of 10 high school graduates have never had such counseling. . . . There are no school counselors at all in 13 percent of the Nation's secondary schools and in 90 percent of its elementary schools. . . . Only Massachusetts and the Virgin Islands meet the Office of Education's basic standard—one counselor for every 300 students." In terms of supervised work experience while in school, "shock" statistics are more startling: "Only seven percent of high school graduates and three percent of dropouts (among out-of-school youth in 1963) had such work experience." These data, reported by the Bureau of the Census and the U.S. Department of Labor, introduce a sad commentary to the primacy of the individual and the concern for human resources of the April 1968 *Manpower Report of the President.*

Six years ago, President Kennedy's Panel of Vocational Education Consultants reported, "Federal vocational education funds devoted to guidance and counseling amounted to approximately 10 cents per student enrolled in the year 1960-61."

The term "human resources" has many definitions. Too often in the present affluent society the accent is placed on the "resources" rather than the "human." Benefactors of the vocational and technical program—the students who complete programs of instruction—are considered to be *economic* plus values, assets to the nation's well being and productivity, and a real boost to the gross national product. As important as the economic concern may be to the *demand* aspect of national manpower, vocational educators who are concerned with the *supply* should have more human purposes. *Research Visibility* of the past has advocated vocational education as *people, service* and *opportunity*. These broad purposes should have their focus in human resources and the provisions which are made for their continuing welfare and participation in the world of work and consequently to a more effective, democratic society.

The 1968 *General Report* of the Advisory Council on Vocational Education in highlighting imperative educational needs sheds considerable clarification on the concern for human rseources. "Less emphasis must be placed on manpower as an economic resource and more on employment as a source of income and status for workers and their families. . . . Career consciousness must be integrated thoughout the schools in order to enlarge the number of

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

options and alternatives for individual pupils—both in terms of occupations and higher education. . . . The study of the world of work is a valid part of education for all children—it documents for youth the necessity of education both academic and vocational."

This report of *Research Visibility* is evidence of a continuing interest in vocational guidance. Considerable attention to the topic was devoted in the *RV* report of March 1968, in which Editor Gordon Law gave specific coverage to systems technology, career development theory and practice, counselor training, regional resources, and experimental and developmental studies Treatment now is concentrated on career development, selection, placement, and follow-up, and occupational trends. Undoubtedly in connection with a forthcoming *RV* report concerned with the preparation of professional personnel, the preparation of counselors will again be given some attention. This month some of the research and development activities of Super, Krumboltz, Briggs, Ryan and others will be reflected in *career development;* London, Haines and Garbin show their expertise in studies of *placement and follow-up,* topics of historical interest and persistent value to vocational educators; Medvin and Fishman advance the state-of-the-art in their studies of *occupational trends.*

There are few aspects of vocational and technical education in which all educators can find common cause and motivating concern as there is in the theme of vocational education as opportunity *through* the provision of vocational guidance. The common cause is much more than an academic meeting place. If vocational education, as it is claimed by the *General Report* of the Advisory Council on Vocational Education, ". . . looks at a man as a part of society and as an individual, and never before has attention to the individual as a person been so imperative," it is important that strong, professional commitments be made for *functional* guidance. Unfortunately, in the past, and possibly with justification, vocational educators have been caught up in the guidance controversy and its relationship to the futile general *versus* vocational argument. Sadly, the team concept has been missing as it apparently is at the moment with few studies to report the interest. Commendations are richly deserved by those good teachers who, through continued interest in the welfare of their students, have achieved many stated goals of the guidance process oblivious to both the academic argument and the specialized talent and training of guidance and counselor personnel.

Realistically, the problem of guidance—building bridges between school and work—is almost everyone's job. At least, it "involves many fundamental elements in American life in addition to educational preparation."

Some young people get help from teachers; some get help from school counselors, especially, "if they are college material" and will therefore cross into the work world with greater ease at a later point. Many are placed by the Employment Service system. Others get help from social workers, police, neighborhood centers, youth programs, or individual employers to whom they apply. Personal contact (through acquaintances, friends, and relatives), which has always been a strong feature of the job market in this country, is one of the most frequent ways of finding jobs.

Parents play an important part in the process of transition (though perhaps less so today than in past years when children were more likely to follow in their parents' occupational footsteps). They are important not only in terms of their influence on the child's preparation for life, but also in terms of the contacts and associations they can open up in the bridge-crossing process. Their contributions in this latter respect are necessarily limited when they themselves have been denied opportunity, through outright discrimination or adverse educational or economic circumstances. —*Manpower Report of the President* April 1968. pp. 112-114.

There are many criteria to assess the values of a guidance program, but two are recognized as especially viable: vocational choices should be based on an individual's understanding of himself and his surroundings, and an individual's choice (if it is a rational one) will strongly take into account his or her probability of success.

TOPIC ONE: Career Development

See Bibliography for information on availability of complete studies

Floundering and Trial After High School, by Donald E. Super, et al. Columbia University, New York, N. Y. 1967.

This fourth monograph in the 10-year longitudinal Career Pattern Study series is a 10-year follow-up study dealing with the transition years from school to college and to work. The specific purpose of the study is the description of the careers of 200 junior-high school boys and the analysis of the possible determinants of their careers. Vocational development is described in terms of problems and solutions, alternatives faced and behavior (floundering, trial, instrumentation, establishment, and stagnation) in coping with alternatives (educational, vocational or military positions to be occupied). The authors suggest that behavior can be revealed by the relationships of (a) positions sequentially occupied, and (b) characteristics of the subject to those of the position. The main issues discussed in this study are (a) floundering and stabilizing after high school, (b) characteristics of success in the early twenties, and (c) validity of vocational maturity scores as predictors of young adult vocational behavior.

In 1951-52, two samples were drawn of the eighth and ninth grade boys in Middletown, New York, public schools. The boys and their parents were interviewed, and the boys were given questionnaires and tests in the first year. Middeltown employment was surveyed. The subjects were followed up periodically (1955-56, 1958-59, and 1962-63, when they were approximately 25 years old). Complete data for all levels were available for 191 of the original subjects. Predictor variables were standard measures of intelligence, parental occupational level, school achievement and participation, community participation, peer acceptance, level of vocational aspiration, and several measures to assess vocational maturity, or readiness for vocational planning.

Criterion variables were measures of career and occupational success or satisfaction, including floundering, trial, instrumentation and establishment, and various measures of career development and occupational status up to or at age 25. *A priori* hypotheses were tested on one twelfth grade group; hypotheses derived from the first analysis of unhypothesized relationships were tested on the second twelfth grade group; and the findings hypothesized and verified in the first sample were cross-validated on the second group. Since standard school measures were available for both samples when they were in eighth or ninth grade, validation and cross-validation were possible of vocational maturity variables at the earlier level.

At 25 years of age more than one-half of the group lived in Middletown and its immediate vicinity—two-thirds within a two-hour drive of the city and three-fourths lived in the Northeastern States. Four-fifths had high school diplomas or the equivalent; more than a third of the high school dropouts had earned diplomas by age 25 to indicate that in a small city the dropout does not always remain a dropout. Almost half the subjects had some form of post-high school education; one-fourth completed two years of such education. One-sixth finished a four-year collegiate education; one-twentieth had master's degrees, and even fewer had a more advanced degree. College graduates had a median Otis I.Q. of 112; employed noncollege subjects had a median I.Q. of 98. High school graduates were employed at a higher occupational level and in more fields than were the dropouts. Graduates felt more successful in their jobs than did dropouts; graduates also felt they were more successful in planning their careers.

Speaking in terms of degree of occupational stability, almost 33 percent of the graduates were floundering during most of their post-high school years. Of the job changes noted, 50 percent were characterized by floundering behavior, 33 percent by trial behavior, and only 10 percent were engaged in stabilizing behavior. However, by age 25, 80 percent were engaged in stabilizing behavior. Using the career development scales to measure floundering quantitatively, moves involving floundering were found to be based on less realistic reasons for making the move than those which involved trial, instrumentation or establishment. Employment histories of the subjects point out an average of six moves each in the seven years from leaving high school until age 25, with the standard deviation being 2.50 and the range from 1 to 16. The average number of times unemployed was fewer than one, the range being from 0 to 7.

For almost five years the subjects were self-supporting, with the range being from zero to almost seven years. The subjects attained none of the highest level professional or managerial occupations, which is understandable because of their age. Excluding those still in graduate school, in military service, or unemployed, 5 percent of the subjects were in regular professional and managerial positions; 25 percent were in semiprofessional and managerial positions; 30 percent were in skilled occupations; 30 percent were in semiskilled occupations; and 10 percent were in unskilled occupations.

In the few fields they were employed, dropouts were working at lower levels. Ninty percent were average or above average in occupational success; however, less than 80 percent would remain in the same occupation if given the chance to change, and 20 percent would change. Only 20 percent felt they were in their most desired occupation; 35 percent desired to continue in the same position even though it was not the only satisfactory position; only 55 percent were "more than lukewarm" about their occupations. Using the career development measures (analyzed to point out the amount of progress from the first position held to that held at age 25) to judge improvement in the use of interests or abilities, the last move was no more appropriate than the first. However, there was a tendancy for the last move to be more realistically motivated than the first, and for the last to be comparable to the socioeconomic level of the father's and father-in-law's position.

Vocational success in young adulthood is characterized by self-improvement—realistically moving up the educational and occupational ladders—and by satisfaction with one's occupation, with outlet for abilities, and with the way one handles the pursuit of a career.

The longitudinal analyses obtained support earlier conclusions that indices of the consistency and wisdom of vocational preferences, crystalization of relevant traits, and independence of work experience are not valid predictors; however, orientation to tasks of vocational choice, acceptance of responsibility for choice, knowledge of vocational information, and planning for training and entering an occupation, do have construct validity. For example, independence of work experience, or high school work experience, has very little specific predictive validity.

However, those measures of vocational maturity which assess knowledge of training requirements, planning and interest maturity are conceptually and empirically adequate. Also, standard measures most widely used in schools and in education and vocational guidance are considered to be the best predictors of vocational development. Boys who are personally and environmentally well endowed, those who have high goals, study the demanding courses in school, get good grades and utilize extra resources in and out of school, have a tendency to handle their careers better and are more successful and satisfied with their jobs than are those boys lacking these characteristics.

Vocational Problem-Solving Experiences for Stimulating Career Exploration and Interest, by John D. Krumboltz, et. al., Stanford University, Stanford, Calif. 1967.

One of the important problems facing school counselors is to find a way to help students make vocational decisions when they are too inexperienced to make good judgments. The purpose of the three studies included in this report was to construct and analyze inexpensive, easily administered, job simulation kits. Problems typically faced by workers in five occupations and the information necessary to solve them were included in the kits. The problems presented were easy enough to insure successful responses; subjects

were able to compare their performance with a "successful" performance. Below is a description of the simulated occupational problems and the results of the experimental tests on them.

Study I: Pilot Study on the Occupation of Accounting. The purpose of this study was to determine the effect on 396 eleventh graders of a set of simulated occupational problems in accounting on their attitudes and behavior. The authors hypothesized that those students who solved simulated problems would be more interested in learning about careers and would evidence a stronger interest in accounting than students who were merely given information on accounting or general occupation information. One month before and after the experiment, the subjects were tested to learn the degree of general and specific occupational interest they had.

Accounting problem-solving, accounting information and general information material was distributed in a random sequence. Each student was given a form to ask for an interview with someone trained in vocational guidance. Those who requested guidance were briefly interviewed within 10 days after the experimental session. Two weeks after the experiment, all the students were interviewed in small groups; these subjects were administered a questionnaire to "elicit self-reporting of information seeking" after the experiment.

As hypothesized, there was an increase in interest in accounting; except for random fluctuation, there was no change in interest in the 41 other occupations listed on the questionnaire. Of the students who requested and received counseling, those who had worked with the simulated problem and those who had received the accounting information material had questions about a greater variety of occupations which were more specific and which had long term and educational career concerns than did the students who had received only general information.

Study II: Booklet-Mediated Simulation Study. The authors developed three versions each of booklets for medical laboratory technology, X-ray technology and sales occupations: problem solving, non-problem-solving and occupational information. Experimental and control treatments were randomly assigned to 561 tenth grade students from two high schools, one upper-middle class and the other lower-middle class.

Data were collected from three self-report forms and three behavioral measures which, when analyzed, pointed to the following results: students who had been given the problem-solving booklet were more inclined to work with similar booklets for different occupations than were those who had worked with non-problem-solving and occupational information booklets. They also exhibited more knowledge of job requirements and they reported requesting more occupational information than the others. The students who were from the low socioeconomic community responded more positively to all the booklets than did the students from the middle-class community.

Study III: Film-Mediated Simulated Study: 132 males and 138 females from two high schools were randomly assigned to participate in three experimental and four control groups, which are described as follows: in the experimental groups (a) an active-overt participation film presented problems and then stopped for a period during which viewers recorded their solutions in workbooks; (b) an active-covert participation film presented the same problems, but the viewers only "thought about" their responses; and (c) a passive participation film presented the same content, but no problems were posed.

In the control groups (a) regular banking career films without problem solving were presented; (b) printed banking career information materials were distributed with subjects being encouraged to search for answers to specific questions; (c) printed general career information, with interest-generating questions, was presented; and (d) a film on science education not related to information passed out to the audience and not requiring any responses was used. The authors measured expressed and inventoried interests in banking occupations, attitudes toward banking and vocational exploratory activities, and the students' reactions to the materials utilized in the study. All the data obtained was analyzed by three-way analysis of covariance and analysis of variance methods.

The results show that students who watched the experimental films expressed more interest in banking occupations than did those control subjects who were presented other materials. Those who were asked to make decisions during the course of watching a film had more interest in banking occupations than did those who were not asked to participate. There was not a significant difference between those who had to write their decisions in a workbook and those who had to merely think about their decisions. However, the overt responders did indulge in more vocational exploratory activities in the month following the experiment than did the covert responders. The students who came from a less privileged neighborhood indicated a higher interest in banking occupations than did the students from a suburban, middle-class school. The females were more interested in banking occupations and a month later were able to report more vocational exploratory activities than were the male students.

Based on the results of these studies, the authors conclude the following: (a) Problem-solving "career kits" consistently produced more interest and more occupational information seeking than control treatments; (b) Subjects from lower socioeconomic schools consistently gave more positive reactions than subjects from middle-class schools, particularly in response to the problem-solving approaches.

Career Simulation for Adolescent Pupils, by P. Marvin Barbula and Stephen W. Isaac, Department of Education, San Diego, Calif. 1967.

The purpose of this project was to examine the effectiveness of simulated environments to foster educational and vocational development of adolescents. The total population in the study was 450 students in six 6th grade classes and nine 8th grade classes. A pretest and posttest were administered to all the students, the difference in results being

said to be the change caused by the students' interaction with materials and teachers during the experimental sessions. Three of the sixth grade classes and three of the eighth grade classes were given special career simulation material which included a Life Career Game. The other classes were not given the special material.

The authors did not find any educational significant differences and they feel that more work is necessary to explore simulation as a method of teaching career development principles to adolescents. They did note that the students were extremely interested in the simulation and suggest that this interest be exploited for their educational and vocational development.

(Editor's note: The negative results of this study can be compared to those obtained in the Krumboltz study—reported on above—which dealt with eleventh and twelfth grade pupils and found definitely positive results.)

Techniques for Selecting and Presenting Occupational Information to High School Students: Volume I, Planning and Development of Research Programs in Selected Areas of Vocational Education, by Leslie J. Briggs and Eleanor L. Norris, American Institutes for Research, Palo Alto, Calif. 1966. (Editors note: The booklets developed as part of this study did not receive a final evaluation during the contract period covered.)

The exploratory work in this report was directed toward improving techniques for selecting and presenting occupational information to high school students by identifying new kinds of content for occupational information that emphasize some of the intangible aspects of jobs, and by considering better ways and formats in which such information could be presented.

Assuming that occupational information is a necessary adjunct to the guidance program that hopes to help young people plan their careers, the authors noted that such information is generally not available in most school libraries in a form that is applicable. To guide research in improved techniques for selecting and presenting such information the authors considered three hypotheses:

1. Information should cause the student to consider himself and his interests, aptitudes, aspirations, life role, types of jobs which interest him, the level at which he would be qualified for entry, training opportunities for jobs which interest him, information on specific jobs, automation, obsolescence, and other modern trends.

2. Information should be made available in relation to local employment needs and training opportunities.

3. Three developmental stages at which the student will need occupational information are:

   (a) At grades 5 through 9 information is needed about overall opportunities to help boys and girls from realistic perceptions of the places each sex now has in the world of work and of roles which may be developed later.

   (b) Appreciation of a large range of job families for student consideration as a first step in planning for an actual job. Opinions differ as to the benefits derived from studying for a specific job from the beginning, as opposed to the benefits of acquiring generalized skills which would be useful in a wide range of jobs.

   (c) The selection of specific educational or training programs which focus on a particular entry job of student interest.

In deference to the above, Briggs and Norris decided that first draft occupational information materials should be constructed for one particular job family. These materials could then be analyzed for improvement and development of similar information that could be applied to the preparation of materials for other jobs.

The project staff first sought information from general sources and local schools to use as background information, after which chosen jobs were related to local training and job opportunities. Interviews were conducted with guidance and vocational education personnel in high schools and junior colleges in the two counties adjacent to Palo Alto—Santa Clara and San Mateo. Source documents that had been prepared by these personnel and by others were also analyzed. The general impression received by the authors was that "both employment picture and training opportunity pictures are very bright for young people who will invest the time to learn skills required for available jobs." According to their economic forecasts, the largest work forces are required in manufacturing, services and retail and wholesale trade; work also forecast as available in communications, transportation, utilities, construction, finance, insurance and real estate, and parts of agriculture. The fastest-growing occupational areas are finance, insurance and real estate. The needs in agriculture are for horticulturists, landscape architects, and gardeners.

The job of secretary was chosen for the pilot study in occupational information because it is a job for which there are many employment and training opportunities nationwide. Many local high schools have courses pertinent to this job, so it is realistic to ask for classroom tryouts of the prototype materials. Included in the references are other documents which were prepared to assist girls considering secretarial work as a career.

Three booklets were then prepared which corresponded in nature to the three working hypotheses mentioned above. The first, *Women's Place in Today's World of Work*, deals with women's place in the world of work, giving information on employment trends in urban areas, education of women, and ratio of women to men with advanced degrees. The same booklet discusses the training limitations which cut down the number of different jobs women can occupy, and attempts to overcome the accepted stereotypes associated with jobs that are considered proper only for men or only for women. The second booklet, *Entry Jobs Leading to the Position of Secretary*, points out entry level jobs, for qualified persons, and describes job progression and career development within the general occupational area. The third booklet, *What It's Like To Be A Secretary*, emphasizes the day-to-day working relationships between secretary and employer, and the role of the secretary as seen by the secretary and by the employer.

The first drafts of the booklets were reviewed by several project staff members and a test based on the content of the books was taken by several experienced secretaries. In the summer of 1966, three students were asked to read the booklets and then take the test; they were then interviewed to obtain their reactions to the booklets. As a result, a revised test was developed, and then the booklets were revised by rearranging some of the topics. The format was adjusted so that the student was required to make a written response to questions after reading several brief pages. Many of the questions required the student to think about herself and her own interests and personality traits.

Effect of an Integrated Instructional Counseling Program To Improve Vocational Decision-Making of Community College Youth, by T. A. Ryan, Oregon State University, Corvallis, Ore. 1968.

In this document, Ryan reports on the evaluation of a planned vocational guidance program which has instructional and counseling components in a community college setting, the primary purpose of which is to improve the occupational choice-making of post-high school youth. The effects of reinforcement counseling techniques were tested and simulation materials were evaluated in this study. Ryan perceives occupational decision-making as a process composed of information seeking, deliberating and deciding components which involve gathering and selecting information, considering alternatives in light of consequences, and decision-making in terms of probability of success and satisfaction.

Ryan tested the following working hypotheses in the study: reinforcement counseling techniques and simulation materials are effective in improving vocational decision-making and in helping students obtain knowledge of sources of personal data and occupational information. The study also attempted to answer questions pertaining to the evaluation of an occupational guidance program: What are the effects of the program on increasing need-achievement of students? What are effects of the program on improvement of students' self concept? What are the effects of a developmental program in overcoming students' learning deficits?

A regular counseling staff was given preservice and inservice training; it used counselor packets to standardize techniques of reinforcement counseling and use of simulation materials. The population for the study was made up of 300 students at the Blue Mountain Community College, a public two-year coeducational post-high school institution in Pendleton, Ore., a city of 15,000. Results from the entrance tests required by the college was one basis on which the subjects were chosen—only those whose scores fell below the fiftieth percentile were chosen. Also, none of the students selected had yet made a firm decision with regard to their occupational plans.

The students were divided into five groups as follows: (a) Reinforcement Counseling Group with counselor cueing and reinforcement of selected vocational decision-making responses; (b) General Counseling Groups with no counselor cueing or reinforcement, the students meeting to read and discuss general vocational guidance materials; (c) Simulation Reinforcement Group with planned courselor cueing and reinforcing and groups working in simulation tasks, planning the life of simulated students similar to the general student population in the area; (d) Self-Exploratory Groups with the counselor providing self-exploratory pamphlets and fill-in exercises designed to help plan their own lives; and (e) Inactive Control, with students receiving individual counseling.

The counseling groups met for 10 consecutive weekly sessions of 50 minutes each; there were 7 to 10 students in each group. Selected topics relating to occupational decision-making were used for all groups. After the final sessions, criterion tests were given to see if there were statistically significant differences in vocational decision-making and knowledge of sources of personal data and occupational information. Analysis of variance was the primary statistical technique used in treating the data.

The results of Ryan's study support his hypotheses that vocational decision-making of community college youth can be improved by use of reinforcement counseling techniques and simulation materials with small groups of students. He found some support for his hypothesis that reinforcement counseling and simulation techniques can help students become aware of the sources of occupational information and personal data needed for vocational decision-making. The data obtained to answer the secondary research questions relating to the evaluation of the experimental guidance program showed that the subjects failed to increase in need-achievement, as measured by need-achievement scores on the Edwards Personal Preference Schedule; the subjects in the reinforcement counseling groups developed more adequate self-concepts (as measured by the index of similarity with adjusted personality on California Q-Sort) than those students who did not receive counselor reinforcement; students improved their study skills but failed to improve basic communication skills.

Ryan feels this study shows the worth of a planned vocational guidance program, integrated instruction and guidance components, with the use of reinforcement counseling techniques and simulation materials. Ryan suggests that this experimental program is economically feasible and has implications for guidance personnel in secondary schools.

The author makes the following recommendations, based on findings from the study:

1. Guidance and instruction should be integrated instead of being treated as individual components of the education-

The People Left Behind. ". . . rural poverty is so widespread and so acute that it is a national disgrace." This is one of the many startling assertions of C. E. Bishop in his report currently available as one of the series of prints of the series, *Seminar on Manpower Policy and Program.* These reports are available from the U.S. Department of Labor's Manpower Administration in Washington, D. C., or from Regional Information Offices.

al process in planning and implementing learning experiences to teach vocational decision-making.

2. Testing, counseling and occupational information services should be developed and implemented as related services designed to achieve specific outcomes.

3. The role of the counselor in the community college setting should be redefined, taking into account counseling goals and inputs such as reinforcement techniques, computer operations, and simulation materials.

4. There should be additional testing of simulation materials, and guidelines should be constructed for developing materials with different populations.

5. There should be additional research to identify and test variations of simulation experiences and materials for teaching sound occupation decision-making to people of all ages from different socioeconomic cultural backgrounds.

TOPIC TWO: Selection, Placement and Follow-Up

See Bibliography for information on availability of complete studies

How Fare MDTA Ex-Trainees? An Eighteen Months Follow-Up Study of Five Hundred Such Persons, by H. H. London, University of Missouri, Columbia, Mo. 1967.

The study is an 18-months follow-up of the pretraining and posttraining condition, experience and success of 518 MDTA ex-trainees who completed a training program in one of 51 difference classes in 19 different occupations, from October 1964 through September 1965, at St. Louis, Kansas City, and Joplin, Mo.

In order to improve methods in selection, training, motivating, and placing of the unemployed, program planners must be aware of how well the trainees are doing, their difficulties on their jobs, and any suggestions they or their employers might have to improve the counseling, training and placement programs. The purpose of this study was to reach some conclusions about the effectiveness of the training and other services received under the Manpower Development and Training Act (MDTA) program and how they might be improved.

The following questions were asked in the study:

1. What has been the personal, educational and family backgrounds of the ex-trainees?

2. What has been the employment and unemployment record of these ex-trainees prior to training?

3. How well were these ex-trainees doing in the occupations for which they were trained, or others in which they might be employed, in comparison with others similarly employed?

4. What did these ex-trainees earn in their original placements following training, and what were they earning at the time of the three subsequent contacts?

5. What observable changes, if any, have taken place in their modes of living following training?

6. What suggestions have they or their employers for improving the counseling, training and placement services in order to better prepare them for satisfactory employment?

7. What likelihood is there that these people will pay income taxes during their normal working lives in sufficient amounts to compensate for their training, and what savings will accrue through reductions in welfare payments by reason of the training and placement programs?

8. To what extent do the results from this study validate and support Form MT-103, used by the Employment Security Office units and 12-months follow-ups?

Data of the following nature were obtained from records in the State and local Employment Security Offices of the public schools, the State Department of Education, and the State Division of Welfare: A list of occupations for which training was given, educational and employment experience, marital status and number of dependents, cost of training, post-training employment record, and amount of welfare paid during the period beginning 18 months prior to training and ending 18 months after training.

An interview schedule was used in contacting the ex-trainees 6, 12, and 18 months following completion of training to validate previously secured data, difficulties encountered on their jobs, suggestions they had for improving training, and changes in their modes of living. The employers rated the ex-trainees immediately following each of the three interviews to show standing on a five-point scale in terms of interest in work, eagerness, willingness on the job, and other characteristics which would indicate their overall promise as employees. The employer also indicated the specifics of the job itself, including duties and wages paid; suggestions for improvement of the training were solicited.

While London makes no claim that the findings of this study can be related to the whole country, they do give an accurate presentation of the MDTA program at that time in St. Louis, Kansas City and Joplin. Conclusions might be applicable to other cities of comparable size and circumstances during the same period covered by this study.

Conclusions of the study are:

1. The program served predominantly nonwhite, female natives of the cities in which the programs were conducted; those who completed the program were of average intelligence and education was above average. Many came from broken homes, lived in crowded housing conditions with many dependents, and had low incomes.

2. Prior to training, work histories were irregular; many of the younger trainees had never had regular jobs, and those who had worked were in skilled, semiskilled, unskilled and service occupations with low wages. Approximately one in five received welfare, usually aid to dependent children.

3. The program was successful in assisting those hardcore unemployed (i.e. low ability, poorly educated, unskilled persons). Eighty-eight percent were employed 18 months after the end of training, and there was some improvement in their modes of living.

4. Posttraining employment was mostly in occupations for which the ex-trainees had been trained or was closely related. There was some occupational upgrading in terms of type of job, wages received, job satisfaction and job stability. These results were better than those received from regular day preparatory vocational programs. It should be kept in mind that MDTA trainees were adults, while adolescents make up most of the day trade preparatory school populations.

5. Respondents indicated that placement services are not entirely satisfactory. Lack of motivation, low wages, unfavorable working conditions, and inadequate coordination among agencies are partially responsible.

6. Employers viewed employee attitudes as the single most important factor in job success.

7. The overall manner of living of ex-trainees is expected to continue much the same for a year or two. Jobs and wages of the ex-trainees will be important factors in their vocational rehabilitation, their standard of living, and their stability as homemakers, workers and citizens.

8. Improvement is needed in the guidance, placement and job follow-up services provided by the Employment Security Offices for MDTA trainees and ex-trainees in terms of additional staff, better trained staff, changes in approaches and procedures.

9. Ex-trainees may eventually pay into the U.S. Treasury more than enough income taxes to reimburse the government for its investment in their training. In addition, they will contribute to the economy as members of the work force, and should be more satisfied with themselves as human beings.

10. With slight changes and few additions, Form MT-103 appears to be satisfactory. The form might be modified or completely changed if the Employment Security Offices should extend its services to include a more frequent and thorough job adjustment type of follow up.

The author recommends:

1. An even larger and more effective program of basic education, guidance, training, placement, and follow-up service should be provided for able-bodied unemployed people of working age in the slum areas of our big cities, and perhaps in smaller communities as well, accompanied by a plan for providing more jobs for them either in the private or public sector of the economy after they are trained.

2. Positive and vigorous efforts should be made to provide information and assistance for planned parenthood so as to stabilize families and minimize the practice of producing unwanted and ill-cared-for children to be supported through ADC.

3. More attention should be given to screening and selection of trainees to the matching of individual assets and liabilities with job opportunities and requirements (enrollment of a person with little interest and motivation, and placement in a position in which training is not applicable is wasteful).

4. As in all vocational education, the teaching content of MDTA training classes should be appropriate to the occupation and the enrollees concerned; teachers should be competent to teach the necessary skills and related job information; courses should continue long enough to develop marketable skills; and the end point of the course should be the placement of at least 75 percent of the ex-trainees in the occupation for which they are trained or a closely related one. Added attention should be given to all of these and to the development of acceptable worker attitudes.

5. The various agencies that serve the poor and the unemployed—Employment Security, schools, Division of Welfare, agency administering unemployment compensation, OEO, Vocational Rehabilitation Service, and others—should be more closely coordinated than they are now to minimize overlapping or duplication of services.

6. Day nurseries for the children of working mothers of poor families should be established and maintained, and working mothers themselves should be provided with continuing education in child care and development, consumer education and home and family relations. These agencies should be closely coordinated with the Employment Security Offices, schools, and the State Division of Welfare. This would go a long way towards reducing aid to dependent children.

How High School Cooperative Trainees Fare in the Labor Market, Phase D: A Follow-Up Study of 1965 Graduates Ten Months After Graduation, by Peter Haines, et al., Educational Research Series No. 39, Michigan State University, East Lansing, Mich. 1967.

This report covers the fourth annual phase of a major study of cooperative education which was begun in 1963, and is part of the continuing evaluation of vocational education in Michigan. An assessment of the employment status of trainees 10 months after graduation is used to measure the effectiveness of secondary school cooperative occupational education programs. This report indicates that the trainees do exceptionally well in the labor market, obtain employment quickly, and have low residual unemployment. Many are still working for the employers who trained them; 16 percent are furthering their post-high school education on a full-time basis.

The cooperative plan of vocational education is used in Michigan high schools with an enrollment of more than 900 students. Under this plan a student enrolls either for the eleventh and twelfth grade or for the twelfth grade alone. He is placed with an employer who will provide occupational training, is paid a regular wage, and works 15-25 hours a week. Generally, at least one of the student's classes is directly related to his job. The following questions were used to measure the contributions of cooperative education:

1. What proportion of the graduates were employed approximately 10 months after graduation? Do employment rates vary among the three fields of training—office, distributive and trade and industrial occupations?

2. To what degree do graduates find employment in an occupation the same as, or similar to, the one in which they were trained? Are there differences among those trained in office, distributive and trade and industrial areas?

3. To what extent do employers of cooperative trainees retain them as full-time employees?

4. Does the cooperative trainee's scholastic ability, as measured by rank in class, compare with that of non-cooperative education students?

5. What is the span of time before the trainee accepted his or her current full-time employment?

6. What additional education do cooperative trainees undertake after graduation?

7. To what extent to cooperative trainees attending a post-high school educational institution concentrate in a field comparable to their cooperative training?

8. To what degree do cooperative trainees attending a post-high school educational institution defray educational training?

The population for the study was made up of public high school students in Michigan who graduated at the end of the 1965 spring semester and who were, at the time of graduation, trainees in a reimbursable cooperative occupational program in office, distributive or industrial occupations. The estimated qualified population was 8,720; usable replies were received from 4,424 trainees, or 54 percent of the population.

After obtaining a list of graduates from school coordinators, each trainee was mailed a questionnaire card and a letter explaining the purpose of the study; a follow-up letter was sent out two weeks later to those who had not originally responded. The questionnaires were screened for completeness and all information was transferred to punch cards, which are now stored and available for longitudinal studies in future years. Tabulation and data analysis was done on the CDC 3600 computer at the Computer Center of Michigan State University.

The major findings of the study reveal the following information. The unemployment rate was low—hardly more than one percent were unemployed 10 months after graduation. A significantly large number of trainees—almost 4 out of 10—were attending college or enrolled in a school beyond the high school on either a full or part-time basis. Twenty-six percent of the trainees were not in the labor market, but were listed as housewives, students or military. Most of the trainees were working in the fields for which they had been trained, e.g., 89 percent of the office trainees were working in an office occupation, 47 percent of the distributive trainees were working in a distributive occupation, and 70 percent of the industrial trainees were working in an industrial occupation.

The employers who had trained the cooperative trainees were benefiting in that they were securing full-time workers—25 percent of the trainees were with their cooperative firms 10 months after graduation; 37 percent worked for their cooperative firms for a period of less than 10 months. The cooperative trainees were average or above average students academically—40 percent of the office trainees ranked in the upper quarter of their graduating class, and the following were in the upper half of their class: 75 percent of the office trainees, 45 percent of the distributive trainees, and 47 percent of the trade and industrial trainees.

Based on the experience gained in this study, the authors recommend that similar studies should be continued each year—as they have been for the four years 1962-1965—so that a continuing inventory can be obtained of the contributions of cooperative education. (At the time of writing this report, the decision had been made not to continue the study.) They also recommend that schools keep better student records so that evaluation by follow up can become an integral phase of the evaluation of vocational education and its contributions. The authors suggest that local programs should be looked at closely to see if student placements accurately reflect the occupational instructions being received.

Some comparisons between annual summaries are given in this report. For example, from 1962 to 1965, although the number of schools offering cooperative education programs increased 54 percent, the number of students participating in the program almost doubled. The percent of graduates remaining with the cooperative employer 10 months after graduation dropped from approximately 55 percent in 1962 to approximately 25 percent in 1965. Graduates attending post-high school institutions increased from 29 percent to 37 percent. The direct relationship of training received to the field of study in post-high school institutions increased in office work from 44 percent in 1963, to 79 percent in 1965; in DE from 21 percent to 70 percent; and in T&I from 44 percent to 73 percent. Comparisons of other relationships which were discussed in this report varied by only a few percentage points.

Problems in the Transition From High School to Work as Perceived by Vocational Educators, by A. P. Garbin, et al., The Center for Vocational and Technical Education, The Ohio State University, Columbus. 1967. (Editor's note: this study has relevance to Placement and Follow-up, as well as to curriculum planning.)

In recent years the 14-24 year old age group has an unemployment rate two to three times higher than the national unemployment rate average, pointing to the difficulty that young people have in adjusting to the world of work. This high unemployment rate can be partly identified in light of the interaction of new technology and changing consumer behavior which has resulted in a decline in agricultural employment, a decrease in the proportion of production workers, displacement by automation of semi-skilled and unskilled occupations, and a constant or increased employment of production supervisors, skilled craftsmen, and more demand for service-production personnel. Successful work adjustment involves training young people to meet nontechnical, socio-psychological aspects of a job, as well as the technical requirements.

The overall project, of which this study is a part, has two purposes: (a) To develop and test solutions which will be instrumental in alleviating some of the most crucial worker adjustment problems; and (b) to encourage the adoption of new instructional materials as well as other programmatic solutions. The main objective of this exploratory study was to collect data from vocational educators that would assist

in guiding the overall project: (a) data pertaining to the identification of problems faced by youths in transition, (b) curriculum materials used by vocational educators which were thought to have an influence in alleviating these problems, and (c) recommendations to facilitate the transition from school to work.

The interview schedule contained questions in six general areas: (a) personal characteristics of the respondents and information about their schools; (b) problems considered to be of major importance in the transition from school to work; (c) impediments to transition which exist in the community or the school; (d) curriculum, including teaching aids, that might help to alleviate transitional problems; (e) problem-solving ideas from the respondents; and (f) the educational and occupational background of the respondents.

The 69 vocational educators recommended by the local directors of vocational education or district superintendents of the schools' systems and chosen as respondents were from urban communities throughout the United States; they had at least two years of experience, were considered to be knowledgeable about the world of work and the problems of worker adjustment, were dedicated to their jobs, and represented a balanced sampling by position. Each respondent received a letter which described how he was chosen for the sample, the purpose of the study and the nature of the upcoming interview. Two weeks later he was interviewed for approximately two hours.

Frequency and percentage distributions were made of data on respondents' personal characteristics and backgrounds. After grouping them into categories, frequency and percentage tabulations were made for each impediment (which faces youth in the transition period); frequencies were also determined for most important and second most important impediments. Because of lack of agreement among respondents, suggestions relating to materials, procedures and program for use in schools were enumerated under various category headings.

Most of the respondents came from non-professional homes, yet they themselves had finished at least four years of college, and several had received a master's degree; they had worked in the field of education for most of their careers, predominantly in vocational education; the annual salary was reported at $10,000, and the majority are working in comprehensive or vocational-technical high schools of approximately 2,000 pupils.

Of 49 specific impediments identified by the respondents, the following four were reported by more than 40 percent: unrealistic aspirations and expectations; poor attitudes toward work and working; lack of responsibility, maturity, and self-discipline; and lack of knowledge of the real demands of work. The most important and second most important impediment reported by most was "lack of responsibility, maturity, and self-discipline." Several broad categories of adjustment problems were determined:

1. *Job Preparation*—lack of experience, unrealistic expectations, lack of basic job skills, and training, etc.
2. *Attitudes Expressed in Behavior or Adjustment to Situation*—immaturity, irresponsibility, disregard for personal appearance, health habits, etc.
3. *Vocational Behavior*—inaccuracy, absenteeism, tardiness, poor work habits, inability to follow directions, etc.
4. *Personality Variables*—individual differences, related needs, aspirations, values, goals being unrealistic.
5. *Family Background and Obligations*—socioeconomic status, parents' occupational aspirations, lower-class attitudes, etc.
6. *Academic Emphasis*—overemphasis on college preparatory courses and college-bound students, poor image of vocational education, etc.
7. *Factors Inherent in Job*—overly high job requirements, employers' unrealistically high expectations, monotonous work, etc.
8. *Discriminatory Factors*—Child Labor Laws, unions, negative image of youth, racial discrimination, etc.
9. *Factors Inherent in Community*—wage structure, lack of local job opportunities, inadequate transportation, etc.
10. *Military Obligations*—uncertain draft status.
11. *Other*

The largest number of respondents, or 85.5 percent, mentioned the first category—"Job Preparation."

The authors feel that vocational educators offered only a sparse group of suggested materials and methods which might be considered for the control or elimination of adjustment problems; there was also a wide variety of ideas that could be of considerable use in the curriculum. Of the suggestions for improving the situation received from respondents, 49 are presented in the summary under 5 broad headings: "Suggestions for Development of Books, Pamphlets and Booklets," "Suggestions for Audio-Visual Materials," "Suggestions for Development of Services and Facilities," "Suggestions for Improvement of Programs and Curriculum," and "Suggestions for Projects, Kits and Tests."

Lack of relevant up-to-date materials was cited most often by the respondents; they were also concerned with the poor image vocational education has in the schools, as compared to the emphasis placed on college preparatory programs.

The authors conclude in their summarization: "School administrators, counselors and teachers must constantly evaluate their goals and methods to ascertain that they are not encouraging rigidity and conformity to cultural and occupational stereotypes. Curricula must permit individual differences and societal changes to be incorporated as a foundation for the determination of educational objectives. If cognition of basic skills and technology becomes the main function of educators then youth will continue to enter an adult society half-prepared for adequate, meaningful and productive living. By integrating the proper attitudes and values, as well as skills, into the curriculum, youth's transition from school to work can be made less problematic."

TOPIC THREE: Occupational Trends

See Bibliography for information on availability of complete studies

Methodology for Projection of Occupational Trends in the Denver Standard Metropolitan Statistical Area, by Leslie Fishman, et al., University of Colorado, Boulder, Colo., 1966.

A review of this report was prepared by Robert Bretzfelder and Robert McIntyre of the Research Office of the Office of Manpower Policy, Evaluation and Research, U.S. Department of Labor. This review summarizes and evaluates the ways of projecting area manpower needs, and it is relied upon heavily for this article.

In surveying and evaluating the state-of-the-art of local occupational manpower demand projections, the study analyzes the literature and techniques of employment projections and occupational forecasting and available data for making forecasts. It also analyzes possible methods for improving national and local employment statistics, and many of the national and local occupational demand forecasts. It suggests "ideal" methodology and data collection techniques. The authors develop an experimental model (of the Denver area economy) which has several tables that show the nature of production relationships of industries and employment distribution in the major industries by major occupation, and provide employment predictions for 1970 and 1975 for 20 major occupations in 10 major industries. The authors point out that present data for many areas are inadequate and, thus, not available for use in such sophisticated techniques. The *supply* of labor, a factor which must be related to *demand* prior to drawing conclusions for future local occupational training requirements, is not treated.

Matrices are developed and analyzed to examine economic relationships. An industry-occupational employment matrix indicates the level of employment in an individual industry for a specified occupation; an interindustry input-output table indicates the amount of purchases and sales of goods and services which comprise the productive relationships of the economy. The application of these tables to a Standard Metropolitan Statistical Area (SMSA) is shown through the use of a (a) "structural" matrix which indicates the total number of employees in each occupation, and (b) a "coefficient" matrix of the percent of total employees in each industry by occupation.

Assuming the availability of data and trained personnel, projections of future occupational employment are started by developing local industry-occupational matrices for prior years. Forecasts of future occupational profiles are made on the basis of data obtained from analysis ow the historical trend observed; industry-occupational matrices are then constructed for future years. At this point, information from businessmen, educators and others should be considered. The final profiles depend upon demand for the products of each industry, which depends on resources available and the extent to which they are utilized in 1970 and 1975. The goal is that projections be accurate as decision guides in vocational and general education.

Six models are developed and analyzed for constructing local occupational projections. Each model is shown in matrix and nonmatrix form. Two of the methods are indicated as more feasible for local occupational projections: (a) data are availible to support them for the sub-regions, and (b) their occupational forecasts can adequately guide vocational and manpower planners. The first method—analysis by industry—is for use in a region where industries can be logically grouped in primary, secondary and tertiary economic categories, and it is necessary to superimpose upon it an occupational profile to be able to project total employment by occupation.

The second method—analysis by occupation—emphasizes the direct projection of time series on four occupational groupings: white collar, blue collar, service, and farmers and farm workers. Inasmuch as this method lacks depth of occupational detail, projections are not of great value to educational authorities. Occupational employment data is generally obtained, in part, from local employers, unions and professional societies, which seem to have individual and inconsistent occupational definitions. Also, the authors report that the 1950 and 1960 censuses show that current detail is not supported by the data.

A detailed, state-of-the-art, bibliography of employment projections which emphasize local occupational forecasts is provided. There are studies by private firms, nonprofit and academic institutions, and the Government. The authors have reviewed statistical evaluations of projections described in this bibliography, giving information on which to judge the relative strengths of the different methods. Four approaches for projections of future employment (and evaluation of the literature for each type) are shown: "(a) ask employers to predict their employment, (b) extrapolate historical data, (c) relate estimates of total economic activity to individual industries, (d) analyze the characteristics of demand and develop projections through statistical relationships of the factors having the greatest influence on demand. Included in the latter method are most of the so-called historical studies."

Also reviewed are 1950 and 1960 census figures, data from the current Populations Survey and from the Bureau of Employment Security, and the series on employment and earnings of the Bureau of Labor Statistics. Criticism of census data is chiefly of its qualitative evaluations in dealing only with the major occupational breakdowns on a national basis. For Standard Metropolitan Statistical Areas occupational projections, detailed occupational information on a local basis is traditionally used.

The authors also pointed out errors in occupational classifications. In their review of data applicable to projecting employment in the Denver SMSA, the authors cover sources and problems which are nationwide. They critically review data of the Bureau of Labor Statistics, the Bureau of the Census, Social Security Administration, and the Colora-

do Department of Employment, with emphasis on definitional problems and problems caused by breaks in time series.

Findings of the report were summarized by the authors as follows:

> The conclusion one must make from the review of the national data available from Census in the occupation and industry fields is that these data are not too promising for use in job predictions for SMSAs. Unfortunately, the Post Enumeration Survey and the Employer Record Check are not available on an SMSA basis, but if national estimates are any guide, the SMSA results would not be optimistic. If one were seriously thinking about use of the census data on an SMSA basis, it would certainly be important as a first step to explore with the Bureau of Census the possibility of running special sections of the PES and ERC applicable to the specific SMSA's involved. . . . However, the inescapable conclusion seems to be that (current and historical) occupational information should be gathered from employers, and the sooner such a program is inaugurated, the sooner will we have reliable information on which to rationalize the labor market."

Three paths are suggested to improve occupational data at the regional level: (a) increase the size and detail of the MRLF (Monthly Report on the Labor Force) by Census; (b) broaden the BLS search for occupational data, along the lines they have already begun, from professional societies, from regulatory agencies, and from other similar sources, and (c) cooperate with business to standardize job descriptions, much as the steel industry has done, and begin to get automatic occupational data as a by-product of already existing reports (either the Social Security or the unemployment reports). In other words, if each Social Security number (or unemployment compensation deduction) included a job classification number, too, then occupational statistics from industry would be automatically available.

Occupational Job Requirements: A Short-Cut Approach to Long-Range Forecasting, by Norman Medvin, U. S. Employment Service, Washington, D. C. 1967.

The Manpower Development and Training Act of 1962 maintains there must be a reasonable expectation of employment for trainees before training courses can be approved, and the same concept is present in the Vocational Education Act of 1963 and the Economic Opportunity Act of 1964; thus, there is a need to design a technique for forecasting long-range occupational job requirements.

The U.S. Employment Service has used the area skill survey technique and training needs surveys, which depend on the validity of employer forecasting. This and other methods are limited in that they are expensive, complex, time consuming, inapplicable to the local areas, and too costly to be performed frequently. State Employment Services, which were given a mandate to make job market information available to vocational school systems under the Vocational Education Act of 1963, have been unable to do so because they have been given no additional funds and the present methods are too costly. (In a few cases the State vocational education agency has shared the cost of a skill survey with the State Employment Service.)

Before attempting to derive a new technique, the author warns againts devoting too much attention to two "myths," the first of which is that emerging occupations will have an important impact on the job market for many years to come, while in fact the job structure changes slowly and the older jobs still account for the bulk of occupations. The second myth is that forecast projections must be precise; the author feels that in the field of counseling and training such exactness is unnecessary, and that it is important only to know the proper direction and magnitude of employment change. For example, if there are funds or physical facilities for only two classes of 25 each, how important is it to know if the true need is 250 or 750?

The author describes a new technique-"Employment Service unfilled job openings-Occupational Outlook Handbook" approach. Unfilled job openings are defined as those live job orders given by employers to the Employment Service which remain unfilled because of a shortage of qualified applicants—this data is presently collected quarterly in 80 of the largest metropolitan areas of the country and will soon be collected in an additional 70 areas. Differing from ES unfilled job openings are job vacancies, or the universe of job openings in an area. The *Occupational Outlook Handbook,* published biannually by the Bureau of Labor Statistics, provides current and long-range qualitative information on 90 percent of the professional, managerial and technical occupations. The *Dictionary of Occupation Titles,* Third Edition, which contains 18,000 defined job titles, is also utilized in this technique.

The first step in the new technique is to obtain a listing of the ES job openings that have been unfilled for 30 days or more, and then to evaluate the relationships of these openings to the *total* unfilled openings for each occupation quarterly, for at least one year to compensate for seasonal fluctuations. If the ES "hard-to-fill" job openings compose over 30-40 percent of the total for several quarters, this indicates that the occupation is in a continuing shortage situation. These hard-to-fill occupations should be subdivided according to the size of the area, e.g. in a large urban area occupations with 100 hard-to-fill openings would go in the first category, those with 20-99 hard-to-fill openings would go in the second category, with the rest going in a final category.

The next step is to relate long-duration unfilled job openings to the total of hard-to-fill vacancies in an area, if the data are available, in order to obtain a series of factors that will make possible a "blowup" of the unfilled job openings data to universe proportions to determine area needs. After the array of occupations in short supply by category of volume is achieved, the next step is to assess the long-range opportunities in those occupations by referring to the *Occupational Outlook Handbook* which has national projections by occupation.

In defending the application of this technique to the local scene, the author presented the following illustrations, bearing in mind that in the situations described the occupations exist in important numbers and there has been a shortage for a year or more in the community:

1. *The cross-industry occupation*—If the national projection indicates expansion for such occupations as bookkeeper, or stenographer, the broad-based nature of the occupa-

tion in the community would present little chance for deviation from the national trend.

2. *The specific industry-occupation tied to broad-gaged income trends*—If the national projections shows expansion for such occupations as bank teller or barber, the risk of applying growth to a specific community is quite minimal.

3. *The specific industry-occupation tied to national growth and institutional factors*—Would anyone question the application of national growth in nurse and other hospital occupations to a local community where there is already abundant evidence of shortage in these positions?

4. *Another possibility*—What about the occupation in a specific industry in which the national long-range projection is favorable, in which there are current local reports of shortage of certain workers in that local industry, but in which the long-range projection for the plant in the community is not favorable? The economist in this case, knowing the precarious status of the plant, would make an adjustment reducing the size of the local need. But suppose that the plant is secretly planning to close? Neither this nor any other technique would be able to produce the right answer. In other words, the unfilled openings—OOH technique is capable of making the same error as other techniques, but with less cost, trouble and effort.

5. *The industry-occupation which is expanding in a local community but for which the national prognosis is contraction.* Again, the local economist would easily be able to make a knowledgeable adjustment.

The author states that in an indeterminate number of areas the technique may not be suitable due to an unusually low number of ES unfilled openings and the absence of job vacancy data.

It is estimated "that the conduct of an unfilled job openings—OOH survey to satisfy vocational education, MDTA and OEO needs would take a single manpower economist an average of not more than six weeks for a survey in a metropolitan area. Total cost to the Employment Service for 150 areas may be up to $200,000, and undoubtedly less as experience is gained, all 150 areas to be completed in one year and repeated at one-year intervals This sum does not include collection of ES unfilled openings data which are now collected in 80 areas and are scheduled to be expanded to 150 areas, with or without the application of this technique.

(Editor's note: Inquiries resulting from review of this publication indicate that the short-cut approach to long-range forecasting has been given considerable field testing about the country with good success. The plan is operational, but not established. Survey costs are not prohibitive, i.e., approximately in the range of six to eight hundred dollars. Additional information will be presented in subsequent *Research Visibility* reports.)

PLAIN TALK

THE LIMITED SPACE available to "Plain Talk" in this report makes necessary a sharp delimitation of treatment to a selected few topics which are highly important to vocational and technical education in general and to guidance services in particular. Hopefully, the following are much more than straws-in-the-wind and greatly deserve more detailed description than a once-over-lightly treatment: (a) Sect. 4(c) Research Projects in New Careers and Emerging Technologies, (b) publications and reports of the International Labour Office, (c) the challenge of "the good guys and the establishment" of the Education Professions Development Act, and the *Directory of Federally Supported Information Analysis Centers.*

The Career Opportunities Branch (COB) of the Division of Comprehensive and Vocational Education Research (DCVR), OE Bureau of Research, has distributed a five-page description of currently funded research projects under a dateline of Aug. 21, 1968. Branch Director Bernard Yabroff of COB (400 Maryland Ave., S.W., Washington, D.C. 20202) makes available the following description of projects which are investigating *new careers in public service activities*:

Administration of Justice (parole, probation, police work). Purpose is to identify and structure subprofessional jobs and curricula. (The New Careers Development Organization, Oakland, Calif.)

Public and Private Social Service Agencies (semi-independent aides). Purpose is to determine the potential for employment and education of subprofessionals; develop curricula to be offered by four Chicago junior colleges. (The YMCA of Metropolitan Chicago.)

Instructional Media (graphic, photographic, electronic, television, etc.). Purpose is to analyze roles and functions of professional, technical and paraprofessional personnel. Curriculum guidelines will be developed. (The NEA's Department of Audiovisual Instruction.)

Recreation Services (recreation programs in hospitals, medical care facilities, senior citizen programs, etc.). Purpose is to examine subprofession careers to staff recreational programs for the ill, disabled and the aged. (New York University, Division of Physical Education, Health and Recreation.)

Major Municipal Agencies (careers in libraries, inspection services, recreation, planning, finance, public works, police, personnel departments). Purpose is to examine application of new career concept to functions and responsibilities of local government. (The Berkeley (Calif.) Institute for Local Self-Government in cooperation with the League of California Cities.)

The above listed projects have in common the design to (a) use job analysis techniques to identify the nature and scope of job tasks and physical, mental and interpersonal job skills; (b) organize tasks and skills into career sequences, and (c) develop articulated secondary, post-secondary and higher education programs for the training.

COB is also supporting research on cost and service de-

livery implications of alternative uses of sub-professionals in ***Human Service Agencies.*** Purpose: Application of cost-benefit analysis to identify experiences of school districts in the employment of nonprofessionals as classroom aides. (The University of Oregon Industrial Relations Institute.)

Emerging Technical Occupations

Research is also being supported in emerging technical occupations to (a) identify emerging subprofessional career opportunities, job tasks and skills in selected, expanded technical fields, and (b) develop curricula at appropriate levels to prepare youths and adults for successful careers.

Electro-Mechanical Project (design testing, manufacture, calibration, operation and maintenance for missile and computer industries, automated production facilities, etc.). The Technical Institute of Oklahoma State University, James Connally Technical Institute and Texas A&M University (Waco), and the Division of Evening Studies of Lowell Technological Institute (Lowell, Mass.) are cooperating here. Generalized curriculum for technicians to assist professionals is now being demonstrated, tested and evaluated.

Bio-Medical Equipment Project (medical technology, medical research). Project is currently in curriculum development and testing phase. (Springfield Technical Institute in Massachusetts and James Connally Technical Institute, Waco, Texas.)

Nuclear Medical Project (application of radioisotopes in medical diagnosis, treatment and research.) This project is just getting underway to develop and pilot test a post-secondary program for technicians for jobs in hospitals, clinics, research facilities and with manufacturers of nuclear medical equipment and pharmaceuticals.

Electro-Optical (including laser) Technology (Electrical, electronic, and optical disciplines) James F. Connally Technical Institute has the responsibility for development, pilot test and evaluation of a post-secondary education program for technicians to work on design, testing, manufacturing, calibration, operation, and maintenance of complex electro-optical equipment and systems.

International Human Resources

The attention of *RV* readers, particularly those who are interested in vocational education and human resources, is invited to the availability of numerous research and informational materials from the International Labour Office. The following have lately come to the *RV* desk: *Publications of the International Labour Office, 1954-1965* (Catalog), and *ILO New Publications* (Volume No. 26, June 1968).

Generally, the following ILO publications are available at subscription rates: *International Labour Review* (annually $6.00; per number 60¢); *Official Bulletin* (annually $5.00; per number $1.50); *Legislative Series* (annually $7.50; per number $1.50); *Bulletin of Labour Statistics* (annually $4.00; per number $1.25), and *Year Book of Labour Statistics* (annually paper $10.00; cloth $12.00). Inasmuch as the scope of the publications is quite extensive, it is advisable to consult the catalog (listed above) for descriptions of the various publications.

Vocational and technical educators should be familiar with especially the ILO's CIRF Publications which basically represent, "A specialized information service in all aspects of vocational training and education, based on a systematic program of documentation and research in the fields of vocational training for workers, supervisors, technicians, and assimilated personnel in all sectors of the economy, including administrative services." Specifically, the CIRF publications are: *Training for Progress* (four, 32-page issues a year, $2.80); *CIRF Abstracts* (loose-leaf form digests on training, world-wide; annual $8.00); and *CIRF Monographs* (specific vocational training studies, irregular publication, varying prices). Presently available: *Training of Vocational Teachers* and *European Apprenticeship.* CIRF publications are available from International Labour Office, CH 1111, Geneva, Switzerland.

JANUARY ISSUE . . . The studies which will be reported in the next issue of *Research Visibility* deal with Administrative Problems in Vocational Education.

The Good Guys and the Establishment

The vast pool of human resources also includes those educational personnel who make up the manpower necessary to adequately staff the nation's vocational and technical education program. Generally these personnel are professional vocational educators. With the advent of the Education Professions Development Act (EPDA) of 1967, which is currently administered by the Office of Education's Bureau of Educational Personnel Training, the education and preparation of all vocational personnel will not be conducted as "business as usual."

Vocational education funds will be administered by the new Bureau. The members of "the establishment" will have little difficulty in recalling a similar switch which occurred with the administration of vocational research funds at the hands of the "good guys." The only thing worse than the administrative split is the lack of definition and description of the "good guys" and the "establishment." Presently there is no specialized, experienced, professional vocational personnel in the new Bureau, a condition also prevalent in numerous other offices which are administering policies and provisions affecting the nation's program of vocational and technical education.

The newly enacted vocational education legislation which reflects the wisdom and good judgment of the Congress will correct some of the imbalances of the administrative process. It may come to pass that the good guys and the establishment will learn to work together for the common good—the extension of vocational education to *all* of the nation's citizens. It is plainly obvious that the establishment will have to exert strong, aggressive and insightful interest and involvement in the new educational manpower bureau, beginning with the formulation of new guidelines and regulations, the conduct of the activities of the education of vocational personnel, and the evaluation of the bureau

effort. It is assumed that vital parts of the establishment are, as they have always been, strong working relationships with business and industry, labor, the farm, the home, and other sectors of American life which have strong concerns for the opportunity and quality of the vocational program.

The rallying focus of the profession of vocational education is the American Vocational Association and its successful history of accomplishment, including the achievement of contemporary support, modernization and communication with the members of Congress whose vision happily extends beyond conditions which produce the good guys and the establishment.

More Research and Information Resources

RVs fine print at the end of this report has a word about the *Directory of Federally Supported Information Analysis Centers*. This is a rich source of information for a very moderate price. "Good hunting!"

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Not Reported in this Issue

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FSIAC DIRECTORY

The *Directory of Federally Supported Information Analysis Centers*, published by COSATI (Committee on Scientific and Technical Information, Federal Council for Science and Technology), is available from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va. 22151. April 1968. Price: $3.00. PB 117 050

The *Directory* definition of an information analysis center is as follows: "An information analysis center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information and/or data in a clearly defined specialized field or pertaining to a specified mission with the intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information and/or data in a form most authoritative, timely and useful to a society of peers and management."

In addition to an alphabetical listing of centers (which contains address, telephone, name of director, sponsor, year started, scope, services available, staff, and qualified users), this descriptive directory contains a subject area index, as well as an index of names of center operators or directors, a list of organizations, and a list of locations.

Below are samples of the 113 centers listed in the *Directory*:

Air Force Machinability Data Center
Binary Metal and Metalloid Constitution Data Center
Bureau of the Census
Chemical Thermodynamics Data Group
ERIC Clearinghouses (14)
ERIC Counseling & Personnel Services Information Center
Laboratory Animal Information Center
National Center for Educational Statistics
X-Ray Attenuation Coefficient Information Center

The following types of information services were excluded from the *Directory*: management information services; holders of raw data files; conventional scientific or technical libraries; abstracting, indexing, and accession services; document depots; mapping and charting activities; regional or state information services.

DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are as follows:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.